Level of Knowledge of Medical School Students About Basic Life Support

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Abstract

Basic Life Support is one of the most important knowledge for doctors and medical students to master. Cardiac arrest can strike anyone without any underlying symptoms. Basic life support can help reduce mortality from cardiac arrest if performed quickly and correctly. This study aims to determine the level of knowledge of basic life support in undergraduate medical students at the Faculty of Medicine, Udayana University because of the need to increase basic life support knowledge in medical students. This research is a quantitative descriptive study with a cross-sectional research design. This research was conducted at the Faculty of Medicine, Udayana University, which was carried out in October 2022. This research uses a stratified random sampling technique which uses primary data from respondents. The population of this study was 1.494 semester students of the medical education study program at the Faculty of Medicine, Udayana University. The research sample was 258 samplee. Data collection using a questionnaire. Analysis of research data using univariate analysis in the form of descriptive frequency distribution, and percentage data. The research results showed that the majority of students at the Faculty of Medicine, Udayana University, had sufficient knowledge about Basic Life Support, 38 (14.7%). The sufficient level of knowledge about Basic Life Support was in the 2020 academic year class of 19 (7.36%), and the level of knowledge about Basic Life Support was obtained based on the experience of university organizations as many as 21 (8.14%). There is still room for improvement to increase the level of knowledge about BLS among the participants. basic life support courses can be integrated into medical students for a fixed period of time to ensure knowledge and skills in basic life support are accessible to every medical student.

Keywords: Basic life support, Cardiopulmonary resuscitation, Knowledge, Medical student

INTRODUCTION

Emergency situations can arise suddenly, without the opportunity for prior preparation. They can arise anytime and anywhere, requiring a quick and appropriate response to address threats or conditions that require immediate action (Alsoufi et al., 2020). These emergencies can include road collisions that result in serious injuries or respiratory arrest for victims, fire situations that require rapid evacuation, and assistance to victims who are injured or exposed to smoke. These natural disasters often result in severe injuries, buried buildings, and medical emergencies. Another example is cardiac arrest, when a person suddenly loses consciousness and stops breathing (Soar et al., 2019).

Sudden cardiac arrest is an emergency condition in which the loss of heart function can lead to unexpected death if appropriate steps are not taken quickly (Savitri, 2018). Most cases of sudden cardiac arrest have no previous symptoms and can affect everyone, including athletes

who are actively exercising, although cardiac arrest is more common in people aged 40 years and over (Junaidi, 2021). One of the causes of death due to increased cardiac arrest is not treated immediately, if the mechanical function of the heart stops suddenly and can cause death within a few minutes (Manurung et al., 2022). Research conducted on medical students in Oman showed that the lack of knowledge, experience, and confidence to assist with cardiopulmonary resuscitation at the scene affected the number of cardiac arrest victims who received initial with cardiopulmonary resuscitation management from surrounding people (Albadi et al., 2020).

Knowledge and ability to perform basic life support treatment must be possessed by everyone (Effendi, 2023). With these skills, it can indirectly reduce the risk factors, adverse effects, and severity of cardiac arrest cases, to reduce the risk of death and provide a good prognosis for the victim. Proper practice is also important in ensuring success rates in with cardiopulmonary resuscitation or first aid in general, which demands a good level of knowledge and skills during medical student days before dealing with patients directly (Pamungkas, 2022).

Based on previous research conducted Shin Tyan et al., (2019), in a study conducted with 138 students in Malaysia, it was found that 71% of students lacked knowledge in Basic Life Support. These situations often require quick and appropriate action to minimize risk, save lives, or reduce the adverse effects caused by these circumstances. Therefore, a good understanding of Basic Life Support and readiness to respond to emergency situations is essential.

Basic life support is a set of emergency measures designed to save the life of a person experiencing a life-threatening medical condition (Wardhani et al., 2023). Basic life support can be used in any situation, from a heart attack to a car accident. Basic life support can be performed by anyone, not just by medical personnel or first responders, and can make a big difference in saving someone's life (Ngaisah, 2019). Some medical conditions, such as heart attack or obstructed breathing, require quick and effective action to keep the victim alive until professional medical help arrives. Delays in providing basic life support can be fatal, and that is why it is important to know and understand the proper course of action during an emergency (Darmawan, 2022).

With this background and interest from the findings in other studies that show that medical students around the world show a need for improvement in basic life support, the authors are interested in making a study regarding the level of student knowledge of basic life support at the Faculty of Medicine, Udayana University to help identify whether basic life support knowledge is adequate. Thus, making medical students as the main target population in this study to help raise awareness of the importance of basic life support knowledge as medical students are expected to be the first line who can help and master this skill during their studies.

METHODS

This research is a quantitative descriptive study with a cross-sectional research design. This research was conducted at the Faculty of Medicine, Udayana University, which was carried out in October 2022.

This research uses a stratified random sampling technique which uses primary data from respondents. The stratified random sampling technique is a sampling technique in heterogeneous and stratified populations by taking samples from each subpopulation whose number is adjusted to the number of members of each subpopulation randomly or haphazardly (Jaya, 2019).

The population of this study was 1.494 semester students of the medical education study program at the Faculty of Medicine, Udayana University. The research samples included in the inclusion criteria were active students at the Faculty of Medicine, Udayana University who were willing to fill out the questionnaire completely. The exclusion criteria for this research were students who were not willing to fill out the questionnaire and students who did not fill out the questionnaire completely. Based on these criteria, 258 samples were obtained.

Collecting research data using a questionnaire. Questionnaires were distributed randomly to obtain diverse responses through various levels of knowledge, age, gender, and other factors included in this study. Analysis of research data using univariate analysis in the form of descriptive frequency distribution, and percentage data presented in tabular form. Data processing and analysis was carried out using the Statistical Program for Social Science software version 25.0.

RESULTS

The following are the characteristics of respondents in this study:

Table 1. Characteristics of the research sample

Characteristics of Respondents	n	%
Gender		
Male	109	42.2
Woman	149	57.8
Age		
<20 years old	123	47.7
>20 years	135	52.3
School Year		
2019	31	12.0
2020	86	33.0
2021	68	26.4
2022	73	28.3
Knowledge Level		
Good	45	17.4
Enough	175	67.8
Less	38	14.7

In table 1, data on the characteristics of respondents were obtained, namely 109 men (42.2%), and 149 women (57.8%). While the characteristics of age less than 20 years are 123 people (47.7%) and more than 20 years 135 people (52.3%). Then, the characteristics of dividing into 4 school years 2019 were 31 people (12%), 2020 were 86 people (33%), 2021 were 68 people (26.4%), and 2022 were 73 people (28.3%). Meanwhile, the level of knowledge with good scores was 45 people (17.4%), 175 people (67.8) and 38 people (14.7%).

Table 2. Overview of Knowledge Level based on Gender

Category	Knowledge Level (Score)				Total	
	Less		Enough			
	n	%	n	%	N	%
Man	20	7.75	89	34.50	109	42.25
Woman	18	6.98	131	50.78	149	57.76
Total	**38**	**14.73**	**220**	**85.28**	**258**	**100**

In table 2, data on the characteristics of respondents were obtained, namely 20 men (7.75%), and 18 women (6.98%) with a score of less knowledge with a total of 38 (14.73%). While the score of sufficient knowledge was obtained by 89 (34.50%) men and 131 (50.78%) women with a total of 220 (85.28%).

Table 3. Overview of Knowledge Level by Class or School year

Category	Knowledge Level (Score)				Total	
	Less		Enough			
	n	%	n	%	N	%
2019	10	3.88	21	8.14	31	12.02
2020	19	7.36	67	25.97	86	33.33
2021	4	1.55	64	24.81	68	26.36
2022	5	1.94	68	26.36	73	28.29
Total	**38**	**14.73**	**220**	**85.27**	**258**	**100**

Based on table 3, the description of the level of knowledge based on the school year is classified into four categories, namely 2019, 2020, 2021, 2022 with an assessment of less and enough based on this, it is obtained that the 2019 school year was 10 people (3.88%), 2020 was 19 people (7.36%), 2021 was 4 people (1.55%), and 2022 was 5 people (1.94%). While the fair score in the 2019 school year was 21 people (8.14%), 2020 was 67 (25.97%), 2021 was 64 people (24.81%), and 2022 was 68 (26.36%).

Table 4. Overview of Knowledge Level based on Basic Life Support Experience

Category	Knowledge Level (Score)				Total	
	Less		Enough			
	n	%	n	%	N	%
University Organisation	21	8.14	106	41.09	127	49.22
University Curiculum	14	5.43	39	15.2	53	20.54
Have attended off-campus training	3	1.16	22	8.53	25	9.69
No Experience	0	0	53	20.54	53	20.54
Total	**38**	**14.73**	**220**	**85.27**	**258**	**100**

Based on table 4, the description of the level of knowledge based on Basic Life Support Experience is classified into four categories, namely University Organization, University

Curriculum, having participated in off-campus training, and No Experience with less and sufficient assessment categories. In the assessment of the University Organization less as many as 21 people (8.14%), the University Curriculum as many as 14 people (5.43%), had attended off-campus training as many as 3 people (1.16%), and No Experience 0 (0%). While in the category of sufficient assessment for University Organizations as many as 106 people (41.09%), University Curriculum as many as 39 people (15.2%), Have attended off-campus training as many as 22 people (8.53%), and No Experience as many as 53 people (20.54%).

DISCUSSION

From this study, it was found that the level of knowledge of students of the Faculty of Medicine, Udayana University was at an adequate stage and depended on many related factors. Previous research conducted in Perak, Malaysia also obtained almost the same results where basic life support knowledge was at a sufficient stage but several factors influenced the level of knowledge of students about Basic Life Support such as sex organs, experience and training on basic life support, study programs taken, and student years (T et al., 2020).

Most of the respondents were obtained from students in the third academic year or class of 2020, where students are in the fifth semester who have started to get material related to Basic Life Support in the campus education curriculum so that this study expects respondents from the class of 2020 to get the highest score among other classes so that the data obtained is not appropriate, the researcher feels there are related factors that might cause a decrease in knowledge from respondents. This finding is supported by research conducted in Thailand where the study saw a decrease in knowledge six months after respondents were given Basic Life Support training (Srivilaithon et al., 2020).

Of the 258 respondents, 205 respondents had previous Basic Life Support experience from various sources, and 127 respondents (49.2%) gained Basic Life Support experience from the campus Autonomous Arts Organization which focuses on emergencies and disaster management. A total of 20.5% of respondents received Basic Life Support materials from lectures, 9.7% of respondents are currently or have participated in off-campus training, and 20.5% of respondents claimed to have no experience or have never received Basic Life Support materials. Experience in Basic Life Support is important for every medical student, experience can prepare a person to face situations that require alertness, quick decision making, and the right decision.

Mutiarasari et al., (2018) research at the Baluase Health Center showed that 29 out of 39 participants had the necessary knowledge such as the necessary emergency exercises. This is

evidenced by the participants' ability to perform Basic Life Support procedures according to the Standart operating procedur . According to Papi et al., (2020) study conducted in Iran, the shorter the time since the last training, the better the knowledge. This is supported by research in South Africa which states that individuals with a short time will have better memories related to cardiopulmonary resuscitation knowledge.

The results of previous research by Putri et al., (2023) showed that out of 273 respondents, the majority of respondents as many as 118 (43.2%) had knowledge about basic life support in the good category. Research Bakri et al., (2021), shows that the level of knowledge of Faculty of Teaching and Education Sciences students is classified in the moderate category, namely 286 respondents (80.3%). The level of knowledge of students based on the gender of the respondents was classified in the moderate category with a percentage of 80% men and 79% women. The level of knowledge of students based on study programs is classified in the moderate category with the highest percentage of chemistry study programs as many as 28 respondents (87.5%).

Another study by Utariningsih et al., (2022) showed that the majority of respondents had a level of basic life support knowledge in the insufficient category, namely 112 people (59.9%). While the majority of respondents' readiness for basic life support had less readiness, totaling 110 people (58.8%). The results of the bivariate test using the Spearman correlation test showed a significant correlation with a p value of 0.002 ($p < 0.05$), and an r value of 0.229. Based on the results of the study it can be concluded that there is a relationship between the level of knowledge of basic life support with readiness to perform basic life support on nursing students in Lhokseumawe City colleges.

The results of the study Siregar (2021), of 261 students 100 people (38.3%) had a sufficient level of knowledge, 164 people (62.8%) had a good attitude, 203 people (77.8%) students were at a very good level of awareness, Conclusion. it was found that the majority of students had a sufficient level of knowledge, very good awareness, and a good attitude.

Researchers Hazmi (2022), class 2019 had the highest level of knowledge with a total of 31 respondents (91%) of 34 respondents based on class obtaining a good level of knowledge. A total of 66 respondents (64.7%) out of 102 people had a good level of knowledge. Conclusion. From this study it can be concluded that the level of knowledge of University of North Sumatra Faculty of Medicine students in 2019, 2020 and 2021 is good.

Sources of knowledge and previous experience play a crucial role in the formation of adequate knowledge about Basic Life Support. Prior knowledge, be it through formal education, medical training, or hands-on experience, provides the basis for understanding concepts, procedures, and skills related to Basic Life Support. Through medical education and training,

individuals gain an understanding of the principles of first aid in emergency cases, such as handling people with cardiac arrest, respiratory arrest, or fainting. While hands-on experience, such as being involved in an emergency or performing Basic Life Support in a real-life situation, provides a deeper understanding and practical application of Basic Life Support procedures. Knowledge gained from these sources plays an important role in shaping confidence, preparedness, and ability to provide appropriate and effective care in emergency situations.

The level of knowledge about Basic Life Support obtained at the Faculty of Medicine, Udayana University is sufficient because it is based on several factors, one of which is because the majority of respondents who agree on the questionnaire have received previous Basic Life Support training such as from campus organizations that focus on emergencies so that Basic Life Support knowledge has been applied since the beginning. Another influencing factor is that the Basic Life Support training was given to fifth and seventh semester students, so this study is not free from shortcomings where researchers only assessed the scientific knowledge stage and could not assess the practical stage of respondents' knowledge of Basic Life Support like a study conducted in Thailand8 where the study took six months and assessed respondents' skills in performing Basic Life Support procedures. Another obstacle during the study was where more questionnaires should have been anticipated so that the number of samples used could be more representative of the population used.

Basic Life Support knowledge and materials must be disseminated again to medical students so that Basic Life Support knowledge does not decrease and as an effort to improve health services. This study is a description of the level of knowledge of students about Basic Life Support so that further research can be carried out to clarify and explore the relationship of factors related to Basic Life Support.

CONCLUSIONS

This study concluded that the majority of Udayana University Faculty of Medicine students had sufficient knowledge of Basic Life Support but varied with other factors such as age, and academic year. Basic Life Support experience is classified into four categories, namely University Organization, University Curriculum, having participated in off-campus training, and No Experience with less and sufficient assessment categories. In the assessment of the University Organization, there were 21 people (16.5%), the University Curriculum was 14 people (26.4%), 3 people (12%) had attended off-campus training, and 0 (0%) had no experience. Meanwhile, in the category of sufficient assessment for University Organizations as many as 106 people

(83.5%), University Curriculum as many as 39 people (73.6%), Have attended off-campus training as many as 22 people (88%), and No Experience as many as 53 people (100%).

Some of the limitations faced by the author during the research were the lack of interest from the target population group, so that the number of respondents was relatively small compared to the number of active students at Udayana University, so that it could cause bias in the research results. In addition, the lack of data obtained from the questionnaire made it impossible to assess students' practical skills in Basic Life Support due to the type of question-based test. Based on the limitations faced during the study, future researchers related to Basic Life Support can overcome these problems by taking a longer time for the target group population and assessment of respondents' skills, until there are more specific and precise results. Based on the results obtained in this study, there is still room for improvement to increase the level of knowledge about Basic Life Support among the participants. Basic Life Support courses can be integrated into medical student courses for a fixed period of time to ensure knowledge and skills in BLS are accessible to every medical student. This study can also still be developed by using a larger number of respondents in a population to get more specific and accurate results in analyzing the level of knowledge of medical students.

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